Chemical Safety

February 2020

Fume Cupboard Users:

12 Rules

Occupational Health and Safety Service
HSD103C (rev 5)

UNIVERSITY OF CAMBRIDGE

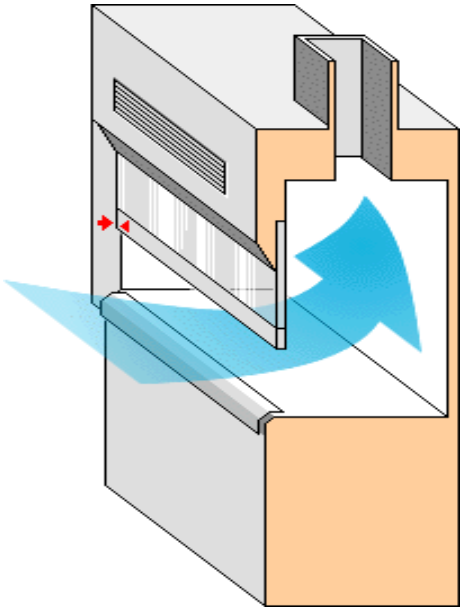
Fume Cupboard Basics:

A standard fume cupboard consists of a containment enclosure (body) with a vertically sliding glass front, the 'sash'. Internal baffles and a aerofoils on the front sill and sash direct the flow of air and must never to removed / adapted.

A fan draws air in through the front opening and vents it to a safe place outside, usually 3 m above the roof. of the building. Some specialised fume cupboards may also filter or 'scrub' the air to clean it before venting outside.

Re-circulating fume cupboards rely on the efficiency / capacity of a filter, have only limited uses and are **NOT** usually recommended for containing toxic or flammable vapours. They also require efficiency testing at least every six months by a competent person. However re-circulating HEPA filtered containment cabinets have a role in the control of toxic powders or dusts during weighing and non-energetic activities which do not make significant quantities of powder or dusts airborne.

NB: Fume cupboards **DO NOT** always provide 100% containment, however maximum protection is afforded when the sash is fully down because the sash also acts as a physical barrier.



Did you know that:

- Fume cupboards are the most common control measure employed in the University to prevent exposure to hazardous substances and yet, can be one of the most commonly abused items of laboratory equipment.
- Large equipment and clutter in the cupboard seriously disturbs the airflow and hence the degree of protection.
- Draughts also interfere with the air flow if fume cupboards are sited near doors, walkways or open windows.
- Fume cupboards must be examined and tested at least every 14 months, and records kept (COSHH Reg^{s}).

So, here are the 12 rules...

1. Before using a fume cupboard ensure you know how to use it safely and consider what to do in an emergency ie: air flow failure.

2. Always carry out a visual check of the fume cupboard before use.

3. Do not forget to check it is switched on, and always check the manometer pressure gauge or 'tell-tale' for air flow.

4. Keep the sash down as far as safely possible; as a minimum the sash should always protect the 'line of sight' and safety glasses should still be worn.

5. Do not lean into or put your head into the fume cupboard !!

6. Site equipment toward the rear to minimise air flow disturbance, but **do NOT block the air flow gap under the back baffle**

7. Choose equipment with feet that enable air to circulate underneath.

8. Do not use a fume cupboard as a storage area; clear the cupboard before and after use.

9. Do a visual check of all electrical equipment before use and do not trail leads through spills or other hazardous liquids (NEVER use extension leads or multi-plug adaptors actually inside the fume cupboard).

10. Remember that heat sources as well as arm and body movements disturb air flow.

11. Do not let tissues or similar items be sucked or drawn up into the baffles and flue.

12. Clean up spills immediately and always clean and dry cupboard after use.

Got a problem? FAQs

Q. I am not sure if fume cupboard is working properly.

A. If there is any doubt do not use it before it is checked. Report it and clearly label cupboard as requiring testing before use.

Q. I can still smell chemicals and solvents?

A. Check it is switched on, is there an air flow? Is it working at the correct air flow rate, which may need to be tested. See safety office guidance and find out:
- how to test the fume cupboard,
- what the flow rate should be
- who to call for remedial action.

Q. I think I let a tissue go up the flue - does this matter?

A. It depends where the fan is located; usually the tissue will lodge somewhere whence it can be retrieved; but maybe not before it has caused damage or a drop in performance. Report it and get the air flow rate checked.

Q. Can I handle dust in a standard fume cupboard?

A. Many fume cupboards operate at an inward airflow, face velocity, of about 0.5 m/s. The HSE say that dusts require a higher air flow of 1 m/s. However **beware** that high air flows can create eddy currents and may result in loss of containment. **NB:** Dusts may also require the air flow to be HEPA filtered prior to safe discharge to the atmosphere and will contaminate ductwork.

Dusts are best controlled in a dedicated HEPA filtered cabinet

For more information or advice contact:

Safety Office
Greenwich House
Madingley Road
Cambridge
CB3 0TX

Phone: 01223 333301
Fax: 01223 330256
Email: safety@admin.cam.ac.uk
www.safety.admin.cam.ac.uk/